

What is claimed is:

[Claim 1] 1. A control panel apparatus for a wastewater system comprising:

a housing, wherein the housing includes a nonconductive portion bounded by an inside surface located inside the housing and an outside surface located outside the housing;

at least one processor mounted within the housing, wherein the at least one processor is adapted to receive at least one condition signal representative of a condition associated with a reservoir;

at least one alarm output device in operative connection with the at least one processor, wherein the at least one processor is operative responsive to the at least one condition signal to cause the at least one alarm output device to output an alarm signal;

a sensor in operative connection with the processor and mounted adjacent the inside surface of the portion of the housing, wherein sensor is operative to have a change in capacitance in response to the presence of a portion of a human body positioned adjacent the outside surface of the portion of the housing, wherein the processor is responsive to the change in capacitance of the sensor to cause the at least one alarm output device to at least temporarily silence the output of the alarm signal.

[Claim 2] 2. The apparatus according to claim 1, wherein the portion of the housing adjacent the sensor does not include a hole therethrough.

[Claim 3] 3. The apparatus according to claim 1, wherein the housing complies with at least the National Electrical Manufacturers Association (NEMA) 4X standard for fluid penetrations.

[Claim 4] 4. The apparatus according to claim 1, further comprising at least one input device in operative connection with the processor, wherein the at least one input device is operative to specify at least one alarm level, wherein the processor is operative to cause the at least one alarm to output the alarm signal responsive to the at least one alarm level and the at least one condition signal.

[Claim 5] 5. The apparatus according to claim 4, wherein the housing includes an opening and a door that is operative to close the opening, wherein the housing further includes a sub-door in hinged connection with an inside portion of the housing, wherein the processor is mounted to the sub-door.

[Claim 6] 6. The apparatus according to claim 5, further comprising:

a reservoir;

at least one fluid level sensing device positioned within the reservoir and in operative connection with the processor, wherein the at least one condition signal is produced responsive to the at least one fluid level sensor device and is representative of a depth level of a fluid in the reservoir.

[Claim 7] 7. The apparatus according to claim 6, further comprising at least one pump, wherein the processor is operative to cause the at least one pump to change the depth level of the fluid level in the reservoir.

[Claim 8] 8. The apparatus according to claim 6, wherein the at least one fluid level sensing device comprises a pressure bell positioned in the reservoir.

[Claim 9] 9. The apparatus according to claim 6, wherein the at least one fluid level sensing device comprises at least one float device positioned in the reservoir.

[Claim 10] 10. The apparatus according to claim 4, wherein the processor is operative to determine when the at least one condition signal corresponds to at least one alarm level, wherein when condition signal does not correspond to the at least one alarm level, the processor is responsive to the change in capacitance of the sensor to cause the at least one alarm output device to output an alarm signal for a predetermined amount of time, wherein when the at least one condition signal does correspond to at least one alarm level, the processor is responsive to the change in capacitance of the sensor to cause the at least one alarm output device to at least temporarily silence the output of the alarm signal.

[Claim 11] 11. The apparatus according to claim 4, further comprising at least one contact relay mounted within the housing and adapted to open and close an AC circuit which powers run windings of a motor of a pump, wherein the processor is operative to cause the at least one contact relay to at least one of open and close the AC circuit responsive to the at least one condition signal and responsive to at least one of current or voltage of the AC circuit being within a predetermined amount of time of a cross-over point.

[Claim 12] 12. The apparatus according to claim 4, further comprising:

at least one contact relay mounted within the housing and adapted to open and close an AC circuit which powers run windings of a motor of a pump;

at least one start relay mounted within the housing and adapted to open and close a further circuit which powers start windings of the motor of the at least one pump,

wherein the processor is operative to start the motor of the at least one pump responsive to the at least one condition signal by causing the at least one contact relay to close the AC circuit and by causing the at least one start relay to close the further circuit;

wherein responsive to a current associated with the run windings corresponding to a predetermined level, the processor is operative to cause the at least one start relay to open the further circuit.

[Claim 13] 13. The apparatus according to claim 4, further comprising at least one circuit in operative connection with the at least one input device, wherein the at least one circuit includes a conductive surface accessible to a voltmeter, wherein responsive to the at least one input device, the at least one circuit is operative to cause the conductive surface to have a voltage value in units of volts which numerically about corresponds to a unit of length divided by ten for a depth level of the fluid in the reservoir specified by the at least one input device.

[Claim 14] 14. The apparatus according to claim 1, further comprising at least one label in operative connection with the housing adjacent the outside surface of the portion of the housing, wherein the label includes indicia which indicates to an operator the position to place the human body portion so as to silence the at least one alarm output device.

[Claim 15] 15. A method comprising:

- a) monitoring at least one condition signal with a processor of a control panel apparatus, which at least one condition signal is associated with a depth level of a fluid in a reservoir, wherein the apparatus comprises a housing with a nonconductive portion bounded by an inside surface located inside the housing and an outside surface located outside the housing, wherein the apparatus further comprises a sensor mounted adjacent the inside surface of the portion of the housing, wherein sensor is operative to have a change in capacitance in response to the presence of a portion of a human body positioned adjacent the outside surface of the portion of the housing;
- b) determining with the processor that the at least one condition signal corresponds to at least one alarm level;
- c) responsive to (b) causing with the processor, at least one alarm output device in operative connection with the apparatus to output an alarm signal;
- d) detecting with the processor a change in capacitance of the sensor;
- e) responsive to (d) causing with the processor, the at least one alarm output device to at least temporarily silence the output of the alarm signal.

[Claim 16] 16. The method according to claim 15, further comprising:

- f) responsive to (b) causing with the processor, at least one pump to change the depth level of the fluid level in the reservoir.

[Claim 17] 17. The method according to claim 16, wherein the apparatus includes at least one contact relay mounted within the housing and adapted to open and close an AC circuit associated with run windings of a motor of the at least one pump, further comprising:

- g) determining that at least one of current or voltage associated with the AC circuit is within a predetermined amount of time of a cross-over point;
- h) causing with the processor the at least one contact relay to at least one of open and close the AC circuit responsive to (g).

[Claim 18] 18. The method according to claim 16, wherein the apparatus includes at least one contact relay mounted within the housing and adapted to open and close an AC circuit associated with run windings of a motor of the at least one pump, wherein the apparatus includes at least one start relay mounted within the housing and adapted to open and close a circuit which powers start windings of the motor of the at least one pump, further comprising:

- g) causing with the processor the at least one contact relay to close the circuit which powers the run windings of the motor of the at least one pump;
- h) causing with the processor the at least one start relay to close the circuit which powers the start windings of the motor of the at least one pump;
- i) determining with the processor that the current associated with the run windings corresponds to a predetermined level;

j) responsive to (i) causing with the processor, the at least one start relay to open the circuit which powers the start windings of the motor of the at least one pump.

[Claim 19] 19. The method according to claim 18, further comprising:

k) causing with the processor the at least one start relay to close the circuit which powers the start windings of the motor of the at least one pump;

l) determining with the processor that an amount of time has elapsed since (k) which corresponds to a predetermined amount of time;

m) responsive to (l) causing with the processor, the at least one start relay to open the circuit which powers the start windings of the motor of the at least one pump.

[Claim 20] 20. The method according to claim 18, wherein in (i) the predetermined level of current corresponds to the motor of the at least one pump operating at least at 75% of full speed.

[Claim 21] 21. The method according to claim 15, wherein the apparatus includes at least one input device adapted to set the at least one alarm level, wherein the at least one alarm level corresponds to a depth level of the fluid in the reservoir in units of length, wherein the apparatus further comprises a circuit in operative connection with the input device, wherein the circuit includes a first conductive surface, wherein the apparatus includes a second conductive surface operative as a ground, wherein the first and second conductive surface are capable of being accessed by a portable voltage meter, further comprising:

f) responsive to the at least one input device, causing with the circuit, the conductive surface to have a voltage in units of volts which numerically about corresponds to a unit of length divided by ten for a depth level of the fluid in the reservoir specified by the at least one input device.

[Claim 22] 22. The method according to claim 15, wherein the housing includes an opening and a door that is operative to close the opening, wherein the housing further includes a sub-door in hinged connection with an inside portion of the housing, wherein the apparatus comprises a main circuit board in operative connection with the sub-door, wherein the main circuit board includes the processor, wherein while the apparatus is in operative connection with at least one fluid level sensing device positioned within the reservoir further comprising:

f) installing an optional circuit board in operative connection with the sub-door, wherein the optional circuit board includes a second processor, wherein the optional circuit board includes a code upgrade;

g) upgrading the first processor responsive to the code upgrade accessed from the optional circuit board;

h) communicating data associated with the at least one condition signal from the first processor to the second processor.

[Claim 23] 23. The method according to claim 15, wherein the housing includes an opening and a door that is operative to close the opening, wherein the housing further includes a first sub-door in hinged connection with an inside portion of the housing, wherein the apparatus comprises a main circuit board in operative connection with the first sub-door, wherein the main circuit board includes the processor, wherein while the apparatus is in operative

connection with at least one fluid level sensing device positioned within the reservoir further comprising:

f) replacing the first sub-door with a second sub-door, wherein the second-sub door includes a main circuit board and an optional circuit board, wherein the optional circuit board is operative to at least one of:

display information representative of at least one condition signal through a digital display device of the optional circuit board;

display information representative of at least one alarm level through a digital display device of the optional circuit board;

store pump operating data in at least one data store of the optional circuit board; and

store data in a data store of the optional circuit board, which data is representative of the depth level of the fluid in the reservoir over time.

[Claim 24] 24. The method according to claim 23, wherein the housing includes at least two parallel rails adjacent opposed corners of the housing, wherein each of the two parallel rails includes mounted thereto a hinge bracket, wherein each hinge bracket includes at least one projection, wherein the projections of the at least two hinge brackets are coaxially aligned, wherein in (g) the first and second sub-doors include a concave portion which is adapted to mount to the projections of the hinge brackets.